WHAT IS CLAIMED IS:

1. A method for preparing a fluorescent dye-labeled biological agent, said method comprising contacting an unlabeled biological agent with a fluorescent dye-fused lactone derivative under conditions sufficient to covalently attach the fluorescent dye to said biological agent and form a fluorescent dye-labeled biological agent.

2. A method for preparing a fluorescent dye-labeled phosphoramidite reagent, said method comprising:

(a) contacting a fluorescent dye-fused lactone derivative with a linking group component to form an intermediate fluorescent dye-labeled linking group; and

(b) contacting said intermediate fluorescent dye-labeled linking group with a phosphoramidite moiety under conditions sufficient to covalently attach the phosphoramidite moiety to said fluorescent dye-labeled linking group and form said fluorescent dye-labeled phosphoramidite reagent.

3. A method in accordance with claim **2**, wherein said fluorescent dye-fused lactone derivative has a formula selected from the group consisting of I, II, III, IV, V, VI, VII, VIII, and IX.

4. A method in accordance with claim **2**, wherein fluorescent dye-fused lactone derivative has a formula selected from the group consisting of Ia, Ib, IIa, IIb, IIIa, IIIb, IVa, IVb, V and VI.

5. A method in accordance with claim **2**, wherein said linking group component comprises two reactive functional groups selected from amino, hydroxy, hydrazino and thiol.

6. A method in accordance with claim **2**, wherein said linking group is linear or cyclic or a combination thereof.

7. A method in accordance with claim **2**, wherein said linking group comprises a (C_2-C_{20})alkylene or (C_2-C_{20})heteroalkylene group.

8. A method in accordance with claim **2**, wherein said linking group is cyclic and comprises a five-membered heterocycle.

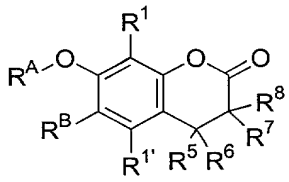
9. A method in accordance with claim **8**, wherein said cyclic linking group is a prolinol linker.

10. A method in accordance with claim **1**, wherein said biological agent is an oligonucleotide.

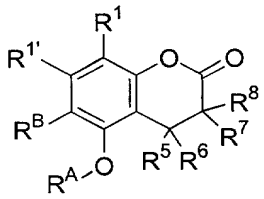
11. A method in accordance with claim **1**, wherein said biological agent is an oligonucleotide having one or more modified bases.

12. A method in accordance with claim **1**, wherein said fluorescent dye-fused lactone derivative is a member selected from the group consisting of coumarins, benzocoumarins, xanthenes, benzo[a]xanthenes, benzo[b]xanthenes, benzo[c]xanthenes, phenoxazines, benzo[a]phenoxazines, benzo[b]phenoxazines and benzo[c]phenoxazines.

13. A method in accordance with claim **1**, wherein said fluorescent dye-fused lactone derivative has a formula selected from the group consisting of:



and



wherein

R^1 and $R^{1'}$ are each members independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkoxy, aryl and heteroaryl;

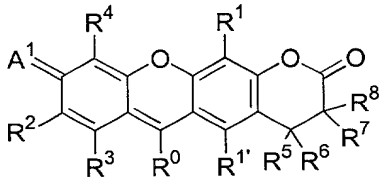
R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, $(C_1\text{-}C_8)$alkyl, aryl, heteroaryl, aryl$(C_1\text{-}C_4)$alkyl and heteroaryl$(C_1\text{-}C_4)$alkyl;

wherein the alkyl portions of any of R^1, $R^{1'}$, and R^5 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of R^1, $R^{1'}$, and R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of

halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

R^A and R^B are combined to form a substituted or unsubstituted fused ring system having from 1 to 4 five- or six-membered rings; with the proviso that the compound has an emission wavelength of from 400 nm to 1200 nm.

14. A method in accordance with claim **13**, wherein said fluorescent dye-fused lactone derivative has the formula:



(I)

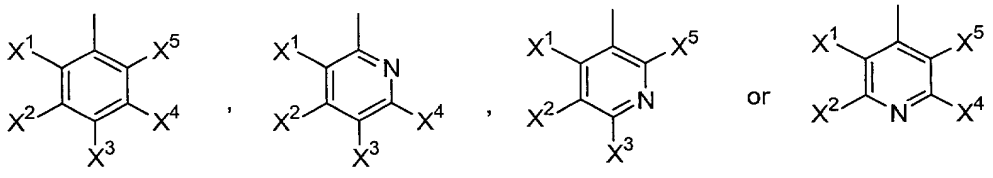
wherein

A^1 represents O or N-Z in which Z is H or (C_1-C_8)alkyl, or is optionally combined with R^2 or R^4 to form a 5- or 6-membered ring or is combined with each of R^2 and R^4 to form two fused 6-membered rings;

$R^{1'}$, R^1, R^2, R^3 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

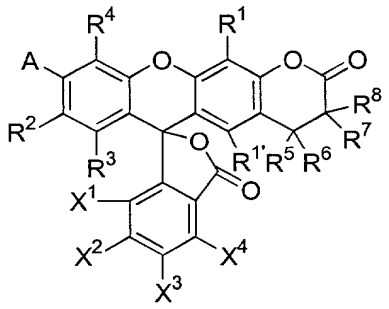
R^0 is halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, substituted or unsubstituted heteroaryl or aryl having the formula:



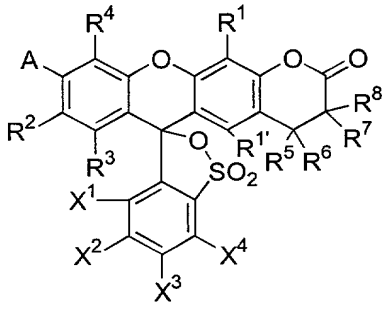
wherein X^1, X^2, X^3, X^4 and X^5 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, SO_3H and CO_2H, and optionally, any two adjacent X^1 through X^5 are combined to form an aromatic or heteroaromatic ring.

15. A method in accordance with claim **14**, wherein R^1 is selected from the group consisting of H, halogen and phenyl; and each R^2, R^3 and R^4 is independently selected from the group consisting of H and halogen.

16. A method in accordance with claim **14**, wherein said fluorescent dye-fused lactone derivative has a formula selected from the group consisting of:



(Ia)



(Ib)

wherein

A is hydroxy, amino, protected hydroxy, or protected amino;

$R^{1'}$, R^1, R^2, R^3 and R^4 are each independently selected from H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio and $(C_1\text{-}C_8)$alkoxy;

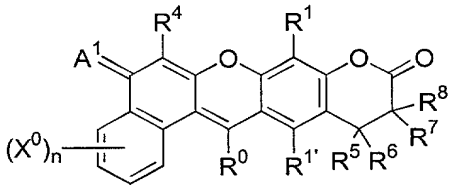
R^5, R^6, R^7 and R^8 are each independently selected from H, $(C_1\text{-}C_8)$alkyl, aryl and aryl$(C_1\text{-}C_4)$alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1\text{-}C_6)$alkylamino, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkylthio and $(C_1\text{-}C_6)$alkoxy; and

optionally, any two adjacent substituents X^1 through X^4 can be taken together to form a fused aromatic or heteroaromatic ring that is optionally further substituted

with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy.

17. A method in accordance with claim **16**, wherein said fluorescent dye-fused lactone derivative has formula Ia in which A is hydroxy or a protected hydroxy; R^5 through R^8 are each H; R^1, R^2, R^3, R^4 and $R^{1'}$ are independently selected from the group consisting of H, halogen, cyano and CF_3.

18. A method in accordance with claim **13**, wherein said fluorescent dye-fused lactone derivative has the formula:



(II)

wherein

A^1 is O or N-Z in which Z is H or (C_1-C_8)alkyl, or is optionally combined with R^4 to form a 5- or 6-membered ring;

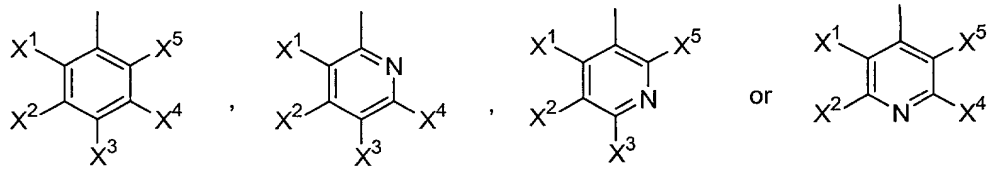
$R^{1'}$, R^1 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

the subscript n is an integer of from 0 to 4;

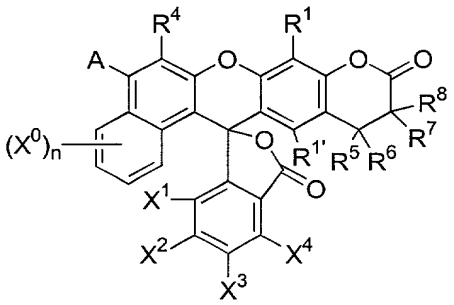
each X^0 is a member independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkoxy, (C_1-C_8)alkylthio, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, aryl, heteroaryl, SO_3H and CO_2H;

R^0 is halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, substituted or unsubstituted heteroaryl or aryl having the formula:



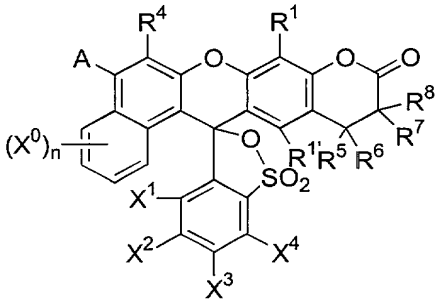
wherein X^1, X^2, X^3, X^4 and X^5 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, SO_3H and CO_2H, and optionally, any two adjacent X^1 through X^5 are combined to form an aromatic or heteroaromatic ring.

19. A method in accordance with claim **18**, wherein said has a formula selected from the group consisting of:



IIa

and



IIc

wherein

A is hydroxy, amino, protected hydroxy, or protected amino;

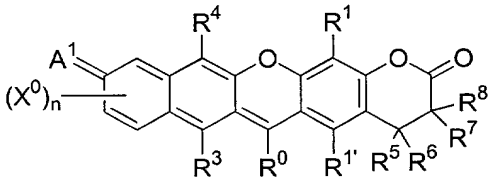
$R^{1'}$, R^1 and R^4 are each independently selected from H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio and $(C_1\text{-}C_8)$alkoxy;

R^5, R^6, R^7 and R^8 are each independently selected from H, $(C_1\text{-}C_8)$alkyl, aryl and aryl$(C_1\text{-}C_4)$alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1\text{-}C_6)$alkylamino, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkylthio and $(C_1\text{-}$

C_6)alkoxy; and optionally, any two adjacent substituents X^1 through X^4 can be taken together to form a fused aromatic or heteroaromatic ring that is optionally further substituted with from one to four substituents selected from halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy.

20. A method in accordance with claim **19**, wherein said fluorescent dye-fused lactone derivative has formula IIa in which A is hydroxy or a protected hydroxy; R^5 through R^8 are each H; R^1, R^4 and $R^{1'}$ are independently selected from the group consisting of H, halogen, cyano and CF_3.

21. A method in accordance with claim **12**, wherein said benzo[b]xanthene has the formula:



(III)

wherein

A^1 is O or N-Z in which Z is H or (C_1-C_8)alkyl, or is optionally combined with an adjacent X^0 to form a 5- or 6-membered ring or is combined with two adjacent X^0 groups to form two fused 6-membered rings;

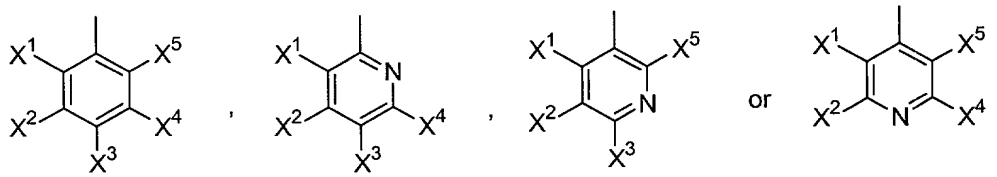
$R^{1'}$, R^1, R^3 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

the subscript n is an integer of from 0 to 4;

each X^0 is a member independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, aryl, heteroaryl, SO_3H and CO_2H;

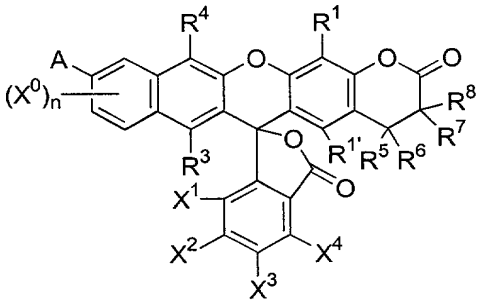
R^0 is a member selected from the group consisting of halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, and substituted or unsubstituted heteroaryl or aryl having the formula:



wherein X^1, X^2, X^3, X^4 and X^5 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, SO_3H and CO_2H, and optionally, any two adjacent X^1 through X^5 are combined to form an aromatic or heteroaromatic ring.

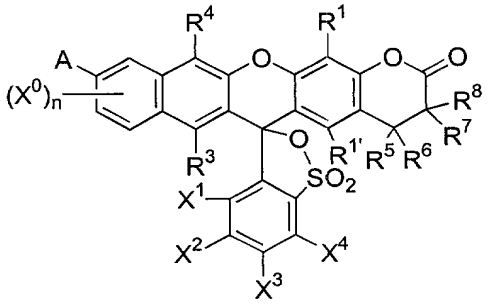
22. A method in accordance with claim **21**, wherein R^1 is halogen; and each X^1 through X^4 is independently selected from the group consisting of H, F and Cl.

23. A method in accordance with claim **21**, wherein said benzo[b]xanthene has a formula selected from the group consisting of:



(IIIa)

and



(IIIc)

wherein

A is hydroxy, amino, protected hydroxy, or protected amino;

the subscript n is an integer of from 0 to 3;

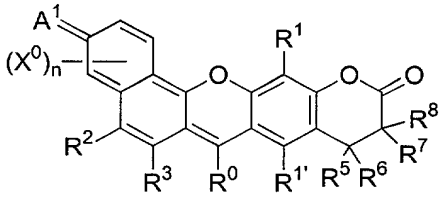
each X^0 is a member independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, aryl, heteroaryl, SO_3H and CO_2H;

$R^{1'}$, R^1, R^3 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio and (C_1-C_8)alkoxy;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl and aryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy; and optionally, any two adjacent substituents X^1 through X^4 can be taken together to form a fused aromatic or heteroaromatic ring that is optionally further substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy.

24. A method in accordance with claim **23**, wherein said fluorescent dye-fused lactone derivative has formula IIIa in which A is hydroxy or a protected hydroxy; R^5 through R^8 are each H; R^1, R^3, R^4 and $R^{1'}$ are independently selected from the group consisting of H, halogen, cyano and CF_3.

25. A method in accordance with claim **12**, wherein said benzo[c]xanthene has the formula:



(IV)

wherein

A^1 is O or N-Z in which Z is H or (C_1-C_8)alkyl, or is optionally combined with an adjacent X^0 to form a 5- or 6-membered ring or is combined with two adjacent X^0 groups to form two fused 6-membered rings;

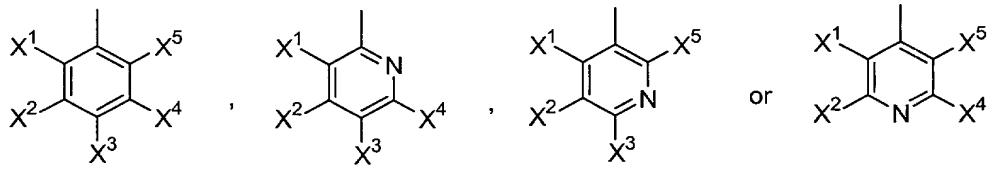
$R^{1'}$, R^1 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

the subscript n is an integer of from 0 to 3;

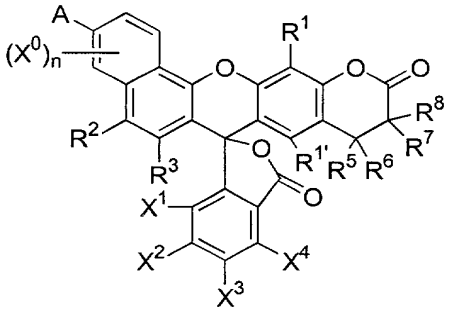
each X^0 is a member independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkoxy, (C_1-C_8)alkylthio, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, aryl, heteroaryl, SO_3H and CO_2H;

R^0 is halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, substituted or unsubstituted heteroaryl or aryl having the formula:

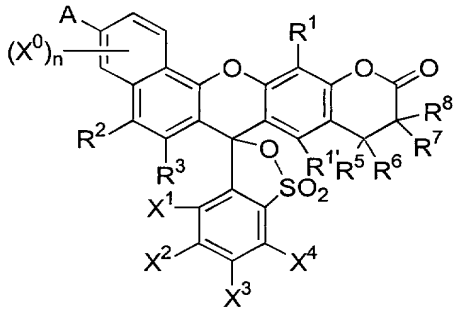


wherein X^1, X^2, X^3, X^4 and X^5 are each independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkoxy, (C_1-C_8)alkylthio, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, SO_3H and CO_2H, and optionally, any two adjacent X^1 through X^5 are combined to form an aromatic or heteroaromatic ring.

26. A method in accordance with claim **25**, wherein said benzo[c]xanthene has a formula selected from the group consisting of:



(IVa)



(IVc)

wherein

A is hydroxy, amino, protected hydroxy, or protected amino;

the subscript n is an integer of from 0 to 3;

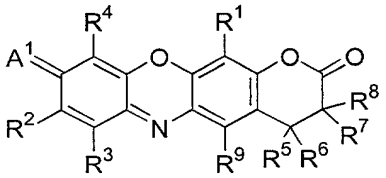
each X^0 is a member independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkoxy, (C_1-C_8)alkylthio, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, aryl, heteroaryl, SO_3H and CO_2H;

$R^{1'}$, R^1, R^3 and R^4 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio and (C_1-C_8)alkoxy;

R^5, R^6, R^7 and R^8 are each independently selected from H, (C_1-C_8)alkyl, aryl and aryl(C_1-C_4)alkyl; wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy; and optionally, any two adjacent substituents X^1 through X^4 can be taken together to form a fused aromatic or heteroaromatic ring that is optionally further substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy.

27. A method in accordance with claim **26**, wherein said fluorescent dye-fused lactone derivative has formula IIa in which A is hydroxy or a protected hydroxy; R^5 through R^8 are each H; R^1, R^2, R^3 and $R^{1'}$ are independently selected from the group consisting of H, halogen, cyano and CF_3.

28. A method in accordance with claim **12**, wherein said phenoxazine has the formula:



(V)

wherein

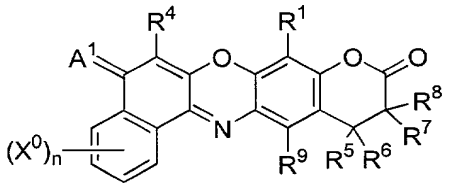
A^1 is O or N-Z in which Z is H or $(C_1\text{-}C_8)$alkyl, or is optionally combined with R^2 or R^4 to form a 5- or 6-membered ring or is combined with each of R^2 and R^4 to form two fused 6-membered rings;

R^1, R^2, R^3, R^4 and R^9 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from H, $(C_1\text{-}C_8)$alkyl, aryl, heteroaryl, aryl$(C_1\text{-}C_4)$alkyl and heteroaryl$(C_1\text{-}C_4)$alkyl; wherein the alkyl portions of any of R^1 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^1 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1\text{-}C_6)$alkylamino, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkylthio and $(C_1\text{-}C_6)$alkoxy.

29. A method in accordance with claim **28**, wherein said fluorescent dye-fused lactone derivative has formula V in which A^1 is O; R^5 through R^8 are each H; R^1 through R^4 and R^9 are independently selected from the group consisting of H, halogen, cyano and CF_3.

30. A method in accordance with claim **12**, wherein said benzo[a]phenoxazines have the formula:



(VI)

wherein

A^1 is O or N-Z in which Z is H or $(C_1\text{-}C_8)$alkyl, or is optionally combined with R^4 to form a 5- or 6-membered ring;

R^1, R^4 and R^9 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio, $(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, $(C_1$-$C_8)$alkyl, aryl, heteroaryl, aryl$(C_1$-$C_4)$alkyl and heteroaryl$(C_1$-$C_4)$alkyl;

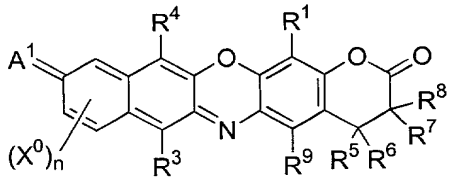
wherein the alkyl portions of any of R^1 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^1 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

the subscript n is an integer of from 0 to 4; and

each X^0 is independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkoxy, $(C_1$-$C_8)$alkylthio, $(C_2$-$C_8)$alkenyl, $(C_2$-$C_8)$alkynyl, aryl, heteroaryl, SO_3H and CO_2H.

31. A method in accordance with claim **30**, wherein said fluorescent dye-fused lactone derivative has formula VI in which A^1 is O; R^5 through R^8 are each H; R^1, R^4 and R^9 are independently selected from the group consisting of H, halogen, cyano and CF_3.

32. A method in accordance with claim **12**, wherein said benzo[b]phenoxazines have the formula:



(VII)

wherein

A^1 is O or N-Z in which Z is H or $(C_1$-$C_8)$alkyl, or is optionally combined with an adjacent X^0 to form a 5- or 6-membered ring or is combined with two adjacent X^0 groups to form two fused 6-membered rings;

R^1, R^3, R^4 and R^9 are each independently selected from H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio, $(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

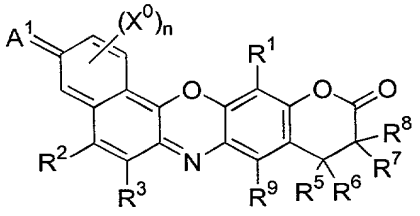
R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, $(C_1$-$C_8)$alkyl, aryl, heteroaryl, aryl$(C_1$-$C_4)$alkyl and heteroaryl$(C_1$-$C_4)$alkyl; wherein the alkyl portions of any of R^1 or R^3 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of R^1 and R^3 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

each X^0 is independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkoxy, $(C_1$-$C_8)$alkylthio, $(C_1$-$C_8)$alkenyl, $(C_1$-$C_8)$alkynyl, aryl, heteroaryl, SO_3H and CO_2H. Additionally, the alkyl portions of any X^0 can be further substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and

the subscript n is an integer of from 0 to 3.

33. A method in accordance with claim **32**, wherein said fluorescent dye-fused lactone derivative has formula VII in which A^1 is O; R^5 through R^8 are each H; R^1, R^3, R^4 and R^9 are independently selected from the group consisting of H, halogen, cyano and CF_3.

34. A method in accordance with claim **12**, wherein said benzo[c]phenoxazines have the formula:



(VIII)

wherein

A^1 is O or N-Z in which Z is H or $(C_1$-$C_8)$alkyl, or is optionally combined with an adjacent X^0 to form a 5- or 6-membered ring or is combined with two adjacent X^0 groups to form two fused 6-membered rings;

R^1, R^2, R^3 and R^9 are each independently selected from H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl;

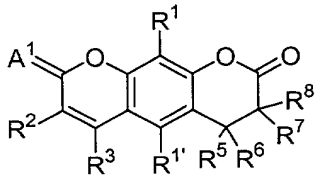
wherein the alkyl portions of any of R^1, R^2, R^3 or R^5 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of R^1, R^2, R^3 or R^5 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

each X^0 is independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkoxy, (C_1-C_8)alkylthio, (C_1-C_8)alkenyl, (C_1-C_8)alkynyl, aryl, heteroaryl, SO_3H and CO_2H, wherein the alkyl or aryl portions of any X^0 can be further substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and

the subscript n is an integer of from 0 to 3.

35. A method in accordance with claim **34**, wherein said fluorescent dye-fused lactone derivative has formula VIII in which A^1 is O; R^5 through R^8 are each H; R^1, R^2, R^3 and R^9 are independently selected from the group consisting of H, halogen, cyano and CF_3.

36. A method in accordance with claim **13**, wherein said substituted coumarin has the formula:



(IX)

wherein

R^1, $R^{1'}$, R^2 and R^3 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkoxy, aryl and heteroaryl;

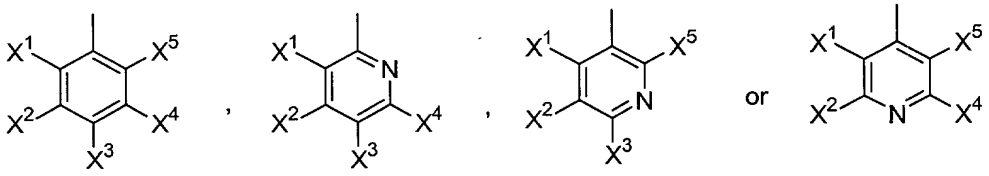
R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, $(C_1\text{-}C_8)$alkyl, aryl, heteroaryl, aryl$(C_1\text{-}C_4)$alkyl and heteroaryl$(C_1\text{-}C_4)$alkyl;

wherein the alkyl portions of any of $R^{1'}$ or R^1 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of $R^{1'}$ and R^1 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1\text{-}C_6)$alkylamino, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkylthio and $(C_1\text{-}C_6)$alkoxy, or optionally, R^2 and R^3 are taken together to form a fused aromatic ring;

A^1 represents O or N-Z, in which Z is H or $(C_1\text{-}C_8)$alkyl.

37. A method in accordance with claim **36**, wherein R^1 is H or halogen; R^3 is $(C_1\text{-}C_4)$alkyl; and $R^{1'}$ and R^2 are each hydrogen.

38. A method in accordance with claim **36**, wherein R^2 and R^3 are independently selected from halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, and aryl or heteroaryl having the formula:

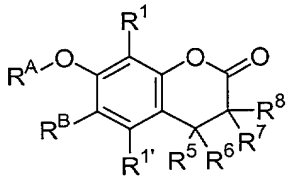


wherein

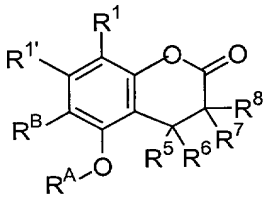
X^1, X^2, X^3, X^4 and X^5 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkoxy, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkenyl, $(C_1\text{-}C_8)$alkynyl, SO_3H and CO_2H, wherein the alkyl portions of any of X^1 through X^5 can be further substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms, and optionally, any two adjacent substituents X^1 through X^5 can be taken together to form a fused aromatic ring that is optionally further substituted with from

one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy.

39. A fused lactone dye having a formula selected from:



and



wherein

R^1 and $R^{1'}$ are each members independently selected from the group consisting of H, halogen, cyano, CF_3, (C_1-C_8)alkyl, (C_1-C_8)alkylthio, (C_1-C_8)alkoxy, aryl and heteroaryl;

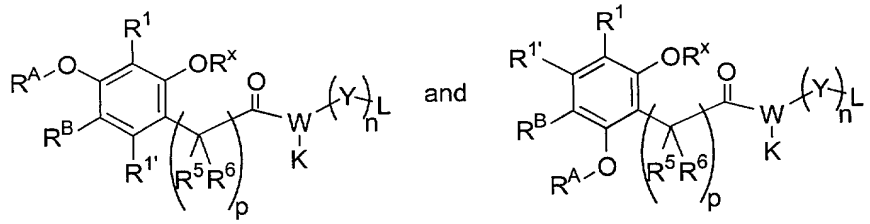
R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of H, (C_1-C_8)alkyl, aryl, heteroaryl, aryl(C_1-C_4)alkyl and heteroaryl(C_1-C_4)alkyl; wherein the alkyl portions of any of R^1, $R^{1'}$, and R^5 through R^8 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of R^1, $R^{1'}$, and R^5 through R^8 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di(C_1-C_6)alkylamino, (C_1-C_6)alkyl, (C_1-C_6)alkylthio and (C_1-C_6)alkoxy;

R^A and R^B are combined to form a substituted or unsubstituted fused ring system having from 1 to 4 five- or six-membered rings; with the proviso that the compound has an emission wavelength of from 400 nm to 1200 nm.

40. A fused-lactone dye of claim **39**, having a formula selected from the group consisting of formula I, II, III, IV, V, VI, VII, VIII and IX.

41. A fused-lactone dye of claim **39**, having a formula selected from the group consisting of formula Ia, Ib, IIa, IIb, IIIa, IIIb, IVa, IVb, V and VI.

42. A dye reagent having a formula selected from:



wherein

R^1 and $R^{1'}$ are each members independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1\text{-}C_8)$alkyl, $(C_1\text{-}C_8)$alkylthio, $(C_1\text{-}C_8)$alkoxy, aryl and heteroaryl;

each R^5 and R^6 is independently selected from the group consisting of H, $(C_1\text{-}C_8)$alkyl, aryl, heteroaryl, aryl$(C_1\text{-}C_4)$alkyl and heteroaryl$(C_1\text{-}C_4)$alkyl;

wherein the alkyl portions of any of R^1, $R^{1'}$, R^5 and R^6 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl or heteroaryl portions of any of R^1, $R^{1'}$, R^5 and R^6 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1\text{-}C_6)$alkylamino, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkylthio and $(C_1\text{-}C_6)$alkoxy;

R^A and R^B are combined to form a substituted or unsubstituted fused ring system having from 1 to 4 five- or six-membered rings;

R^x is selected from the group consisting of H and hydroxy protecting groups;

the subscript p is an integer of from 1 to 3;

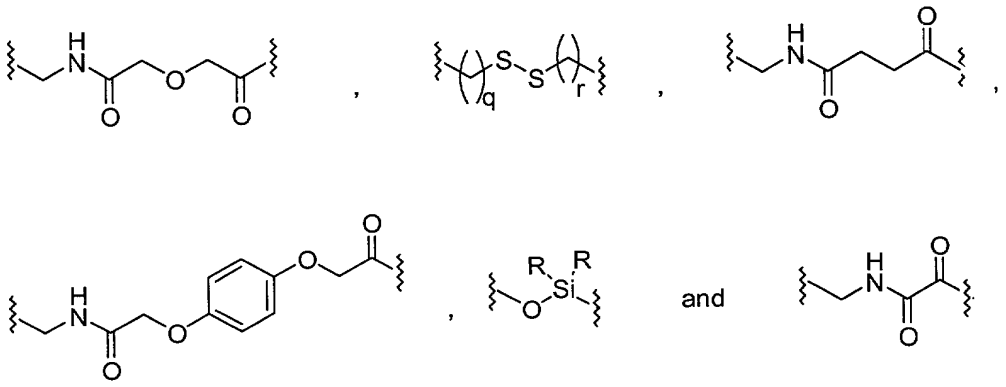
W is a di-, tri- or tetravalent linker which is acyclic, cyclic, aromatic or a combination thereof, having from 4 to 50 atoms selected from the group consisting of C, N, O, P and S and exculsive of hydrogen atoms that fill available valences, and further having a nitrogen atom directly connected to the adjacent carbonyl group;

K is selected from the group consisting of a lone pair of electrons, H, OH, SH, NH, $(C_1\text{-}C_8)$alkyl, aryl, an amino protecting group and and a hydroxy protecting group;

the subscript n is 0 or 1; and when n is 1, Y is a cleavable linking group and L is a solid support; and when n is 0, L is a phosphoramidite or reactive functional group the subscript p is an integer of from 1 to 3;

with the proviso that the reagent has an emission wavelength of from 400 to 1200 nm.

43. A dye reagent in accordance with claim **42**, wherein n is 1, and Y is selected from the group consisting of:



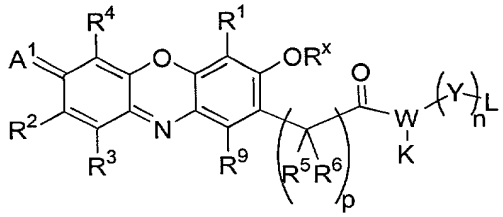
and

wherein the subscripts q and r are independently integers of from 1 to 15; and each R is independently (C_1-C_8)alkyl or (C_1-C_8)alkoxy.

44. A dye reagent in accordance with claim **42**, wherein said reagent has an emission wavelength of from 400 nm to about 850nm.

45. A dye reagent in accordance with claim **42**, wherein R^A, R^B and the ring to which each is attached forms a dye selected from the group consisting of a fluorescein, a benzocoumarin, a xanthene, a benzo[a]xanthene, a benzo[b]xanthene, a benzo[c]xanthene, a phenoxazine, a benzo[a]phenoxazine, a benzo[b]phenoxazine and a benzo[c]phenoxazine.

46. A dye reagent in accordance with claim **45**, having the formula:



(XIIa)

wherein

A^1 is O or N-Z in which Z is H or (C_1-C_8)alkyl;

R^1, R^2, R^3, R^4 and R^9 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio,$(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

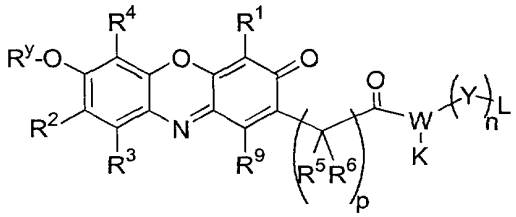
each R^5 and R^6 is independently selected from the group consisting of H, $(C_1$-$C_8)$alkyl, aryl, heteroaryl, aryl$(C_1$-$C_4)$alkyl and heteroaryl$(C_1$-$C_4)$alkyl;

wherein the alkyl portions of any of R^1 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^1 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

optionally, R^2 taken together with R^3 form a fused aromatic ring that is optionally substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

and tautomeric forms thereof.

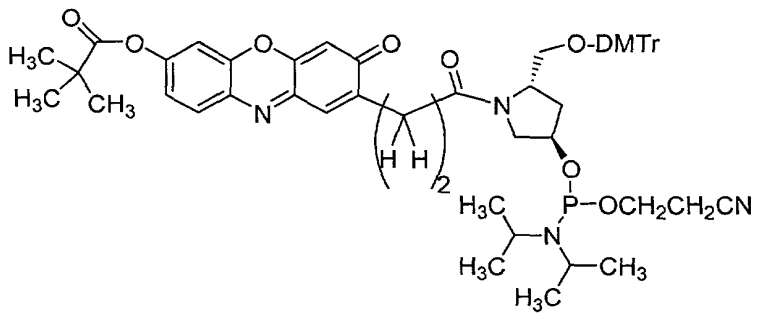
47. A dye reagent in accordance with claim **46**, having the formula:



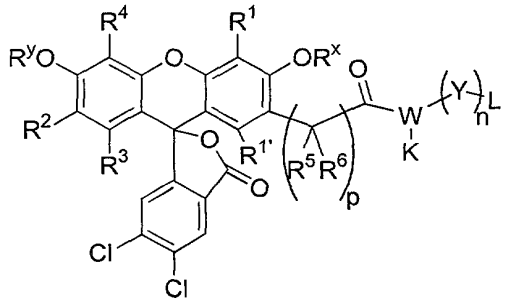
(XIIc)

wherein R^y is a protecting group.

48. A dye reagent of claim **47**, having the formula:



49. A 5,6-dichlorofluorescein dye reagent having the formula:



wherein

R^x and R^y are H or independently selected protecting groups;

$R^{1'}$, R^1, R^2, R^3 and R^4 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio, $(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

each R^5 and R^6 is independently selected from the group consisting of H, $(C_1$-$C_8)$alkyl, aryl, heteroaryl, aryl$(C_1$-$C_4)$alkyl and heteroaryl$(C_1$-$C_4)$alkyl;

wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^6 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^6 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy; optionally, R^2 taken together with R^3 form a fused aromatic or heteroaromatic ring that is optionally substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

the subscript p is an integer of from 1 to 3;

W is a di-, tri- or tetra-valent linker which is acyclic, cyclic, aromatic or a combination thereof, having from 4 to 50 atoms selected from the group consisting of C, N, O, P and S and exculsive of hydrogen atoms that fill available valences, and further having a nitrogen atom directly connected to the adjacent carbonyl group;

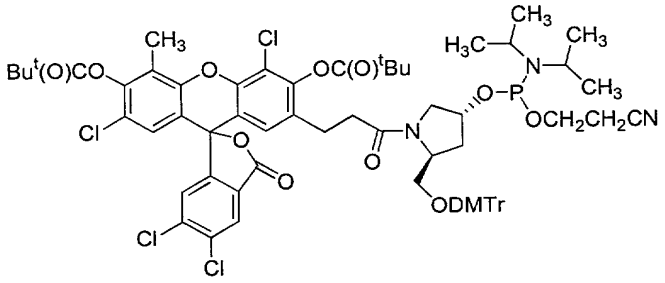
K is selected from the group consisting of a lone pair of electrons, H, OH, SH, NH, $(C_1\text{-}C_8)$alkyl, aryl, an amino protecting group and and a hydroxy protecting group;

the subscript n is 0 or 1; and when n is 1, Y is a cleavable linking group and L is a solid support; and when n is 0, L is a phosphoramidite or reactive functional group the subscript p is an integer of from 1 to 3;

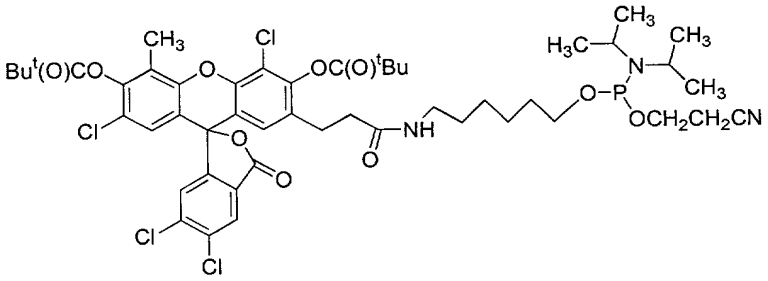
and tautomeric forms thereof.

50. A 5,6-dichlorofluorescein dye reagent in accordance with claim **49**, wherein R^1 is Cl; R^5 and R^6 are H; and the subscript p is 2.

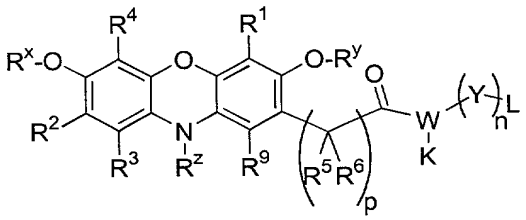
51. A 5,6-dichlorofluorescein dye reagent in accordance with claim **50**, having a formula selected from:



and



52. A leuco-phenoxazine dye reagent having the formula:



wherein

each of R^x, R^y and R^z are protecting groups;

R^1, R^2, R^3, R^4 and R^9 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio,$(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

each R^5 and R^6 is independently selected from the group consisting of H, $(C_1$-$C_8)$alkyl, aryl, heteroaryl, aryl$(C_1$-$C_4)$alkyl and heteroaryl$(C_1$-$C_4)$alkyl;

wherein the alkyl portions of any of R^1 through R^9 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of R^1 through R^9 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

optionally, R^2 taken together with R^3 form a fused aromatic ring that is optionally substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy;

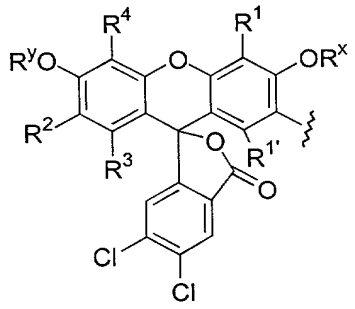
the subscript p is an integer of from 1 to 3;

W is a di-, tri- or tetra-valent linker which is acyclic, cyclic, aromatic or a combination thereof, having from 4 to 50 atoms selected from the group consisting of C, N, O, P and S and exculsive of hydrogen atoms that fill available valences, and further having a nitrogen atom directly connected to the adjacent carbonyl group;

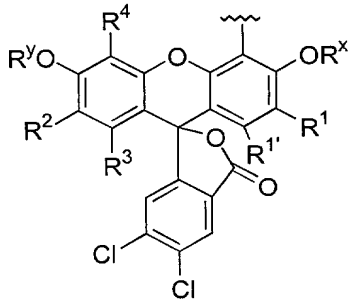
K is selected from the group consisting of a lone pair of electrons, H, OH, SH, NH, $(C_1$-$C_8)$alkyl, aryl, an amino protecting group and and a hydroxy protecting group;

the subscript n is 0 or 1; and when n is 1, Y is a cleavable linking group and L is a solid support; and when n is 0, L is a phosphoramidite or reactive functional group the subscript p is an integer of from 1 to 3.

53. An oligonucleotide probe having an attached 5,6-dichlorofluorescein dye selected from the formulae:



and



wherein,

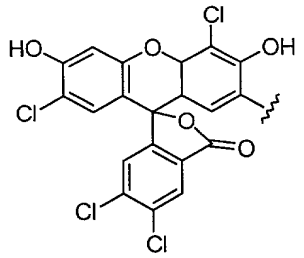
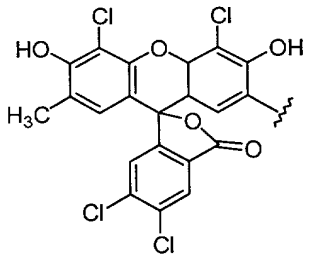
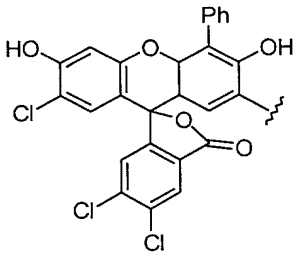
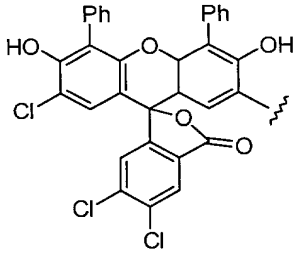
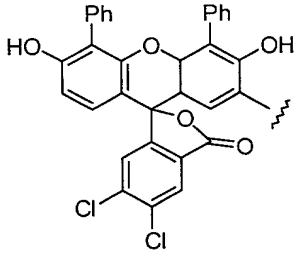
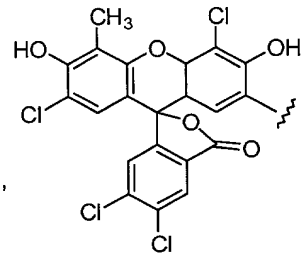
R^x and R^y are H or independently selected protecting groups;

$R^{1'}$, R^1, R^2, R^3 and R^4 are each independently selected from the group consisting of H, halogen, cyano, CF_3, $(C_1$-$C_8)$alkyl, $(C_1$-$C_8)$alkylthio, $(C_1$-$C_8)$alkoxy, aryl and heteroaryl;

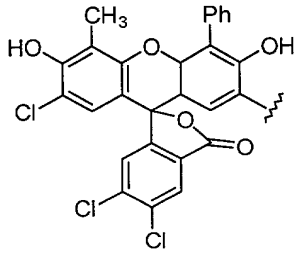
wherein the alkyl portions of any of $R^{1'}$ and R^1 through R^4 are optionally substituted with halogen, carboxy, sulfo, amino, mono- or dialkylamino, alkoxy, cyano, haloacetyl or hydroxy, and the alkyl portions of the substituents have from 1 to 6 carbon atoms; and the aryl portions of any of $R^{1'}$ and R^1 through R^4 are optionally substituted with from one to four substituents selected from the group consisting of halogen, cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy; optionally, R^2 taken together with R^3 form a fused aromatic or heteroaromatic ring that is optionally substituted with from one to four substituents selected from halogen cyano, carboxy, sulfo, hydroxy, amino, mono- or di$(C_1$-$C_6)$alkylamino, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$alkylthio and $(C_1$-$C_6)$alkoxy; and tautomeric forms thereof; and

the wavy line indicates the point of attachment to said oligonucleotide or a linking group joining said oligonucleotide to said dye.

54. An oligonucleotide probe in accordance with claim **53**, wherein said 5,6-dichlorofluorescein is selected from the group consisting of:

and



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55. An oligonucleotide probe in accordance with claim **53**, further comprising an attached quencher.

56. An oligonucleotide probe in accordance with claim **53**, further comprising an attached minor groove binder.

57. An oligonucleotide probe in accordance with claim **53**, further comprising an attached quencher and a minor groove binder, wherein said dye is attached at the 3'-end of said oligonucleotide probe and said quencher and said minor groove binder are attached at the 5'-end of said oligonculeotide probe.

58. An oligonucleotide probe in accordance with claim **53**, further comprising an attached quencher and a minor groove binder, wherein said dye is attached at the 5'-end of said oligonucleotide probe and said quencher and said minor groove binder are attached at the 3'-end of said oligonculeotide probe.